Chapter 4

Emergency Response Phase Kuwait Emergency Recovery Office Activities

The members of the Corps' Kuwait Emergency Recovery Office arrived in Kuwait City shortly after Task Force Freedom. They immediately began conducting damage assessments and implementing their emergency contracting strategy. At the same time, they put in place a flexible, responsive organization to oversee the emergency repairs. During the 90-day emergency phase, the Corps, like Task Force Freedom, focused on restoring essential services to the Kuwaiti people. The Kuwait Emergency Recovery Office and its contractors would successfully bring much of Kuwait's crippled infrastructure back to life.

Coordination and Communication

For the Corps members, the first few weeks in Kuwait were confusing, frustrating, and challenging. They had coordinated their early planning with the Kuwaiti representatives who were in Washington. At that time, these officials did not have a full understanding of the situation in their homeland thousands of miles away. As a result, when Locurcio and his staff arrived in Kuwait, they found that Kuwaiti officials who had remained there during the occupation had taken different actions than those for which the Corps had planned and committed funds. For example, at the request of the Kuwait Emergency Recovery Program, arriving Corps members mobilized a contractor to restore electrical transmission lines only to find that ministry officials in Kuwait had let their own contract.

Coordination with the ministries was supposed to be done through Dr. Shaheen's Kuwait Emergency Recovery Program. Each ministry had

KERO holds its first press briefing, March 1991.

a representative with that organization who determined the requirements and established priorities. Locurcio's staff sometimes had to push the ministries to get lists of priorities. Locurcio did not believe the ministries fully understood the function and purpose of his organization. He found that they tended to view the Corps as a contractor rather than a partner and would not give his staff access to all the information needed for planning. Occasionally, the Kuwaitis appointed inspectors to review the Corps' management of the contractors. This caused some duplication of the Corps' effort and interfered with the progress of the work.

The Kuwaitis rarely integrated outsiders in their planning and were not accustomed to a participatory process. Also, because of their depleted staffs and damaged equipment and facilities, the ministries functioned at only 20 to 30 percent effectiveness. Locurcio and his staff ultimately took it upon themselves to develop some of the priorities and broad plans needed to coordinate repairs such as project lists and various planning systems maps for electricity. They then obtained approval of these plans from ministry representatives.

The Kuwaitis' failure to coordinate effectively with the Corps was particularly striking in the area of damage assessment. Locurcio had assumed

the Kuwaitis would rely on the Corps for all damage assessment and limit their role to policymaking. But occasionally the Kuwaitis created their own damage assessment teams, and ministries began operating their own recovery systems. The Corps and the ministries sometimes discovered that they had conducted damage surveys at the same facilities.

Initially, Corps members had difficulty getting access to planning and decisionmaking by senior ministry officials, so they worked through their subordinates. The situation improved as Corps members gradually learned more about ministry operations and the Kuwaitis developed greater confidence in Locurcio and his staff.[1]

Securing an adequate communications capability also proved difficult. Initially, the Corps relied on the Kuwaiti government's promise to provide communications capability, but nearly a month passed before the necessary equipment materialized. Communications capability during those first weeks was limited. Locurcio could not telephone either the U.S. Embassy in Kuwait or his higher headquarters in Winchester.

Locurcio's staff also had difficulty communicating with other Corps personnel in Dhahran. They could not telephone them until the Dhahran office sent a tactical satellite telephone to Kuwait, but even these communications were unreliable because sometimes the signals could not penetrate the thick clouds of oil and smoke.

Corps members were equipped with Motorola radios, repeaters, and small generators to power the repeaters. The single sideband radios were one of the few available forms of communication in Kuwait City. Locurcio relied on hand-held radios to communicate with his damage assessment teams and other field personnel.

In late March, American Telephone and Telegraph (AT&T) set up a 36-foot earth station satellite dish in Kuwait. Locurcio arranged to use the facsimile transmission capability to send daily reports to the Transatlantic Division. He later purchased from AT&T five dedicated telephone lines, which the Kuwaitis funded. As a result, communications and coordination with the Transatlantic Division and with the Army Staff in Washington improved dramatically. Some of the misconceptions about the Corps' intentions diminished. By late March, the office's communications were, Maj. Lawrence Jinkins concluded, "as good or better than anybody else's in town at the time."[2]

Corps members and contractors found themselves in an unhealthy and dangerous environment. Not only was the air quality poor due to smoke from the oil fires and the political environment unstable, but vast quantities of unexploded munitions lay everywhere—on the streets, around key infrastructure, and stockpiled in schools, ministry buildings, police stations, and other sites throughout the city. Coalition forces had

dropped large quantities of cluster bombs around work sites; some bombs had sunk into the soft sandy ground without detonating.

Corps members and contractors constantly worked around the unexploded ordnance. Many of the facilities they entered had been rigged for demolition, but because of the rapid execution of the ground war, Iraqi soldiers had not had time to detonate the explosives. Working in such an environment was dangerous and sometimes fatal. One contractor was killed when he left the road and stepped on a mine. A truck driver for Blount lost his right arm when a cluster bomb exploded as he brushed sand away from a flat tire. A subcontractor for Blount fell to his death while working on a tower, possibly after receiving an electrical shock. Overall, there were surprisingly few accidents given the amount of unexploded ordnance littering the desert.

Driving in Kuwait became very dangerous due to damaged roads, inoperative or missing traffic signals, and, later, after residents returned, heavy traffic. Despite the Corps' emphasis on safety, one member, Allen Kimbrell, was accidentally struck by a tractor-trailer as he left his work site and later died from his injuries.[3]

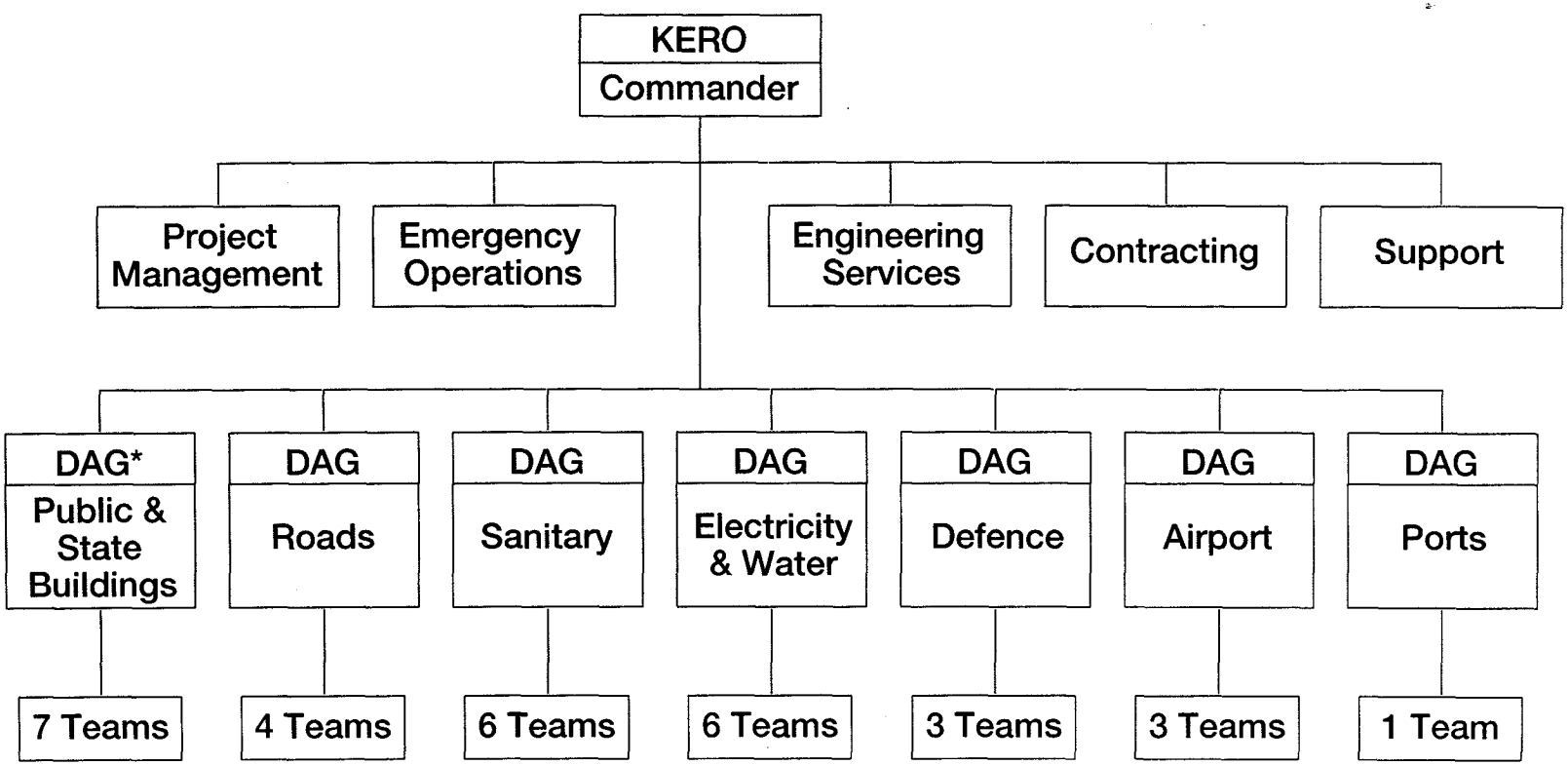
Organizational Structure

Planners had little time to organize, staff, and train the initial Corps organization. The office would be staffed by volunteers from the various Corps districts and divisions who rotated in and out of Kuwait on a three-month cycle. Locurcio decided to use the Corps' traditional organization for a small district office, which included offices for project management, emergency operations, engineering services, contracting, and support. He wanted a familiar structure where new personnel could orient themselves quickly.

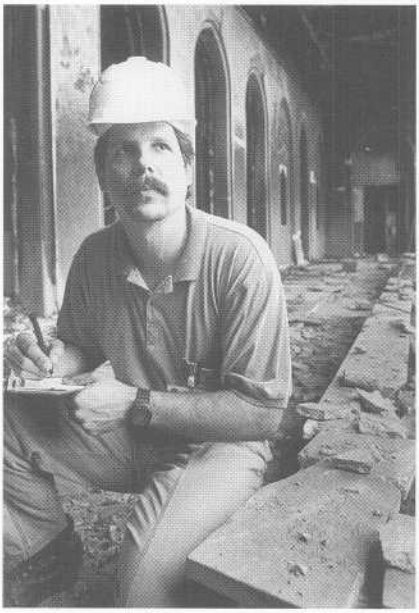
Since planners envisioned that the Kuwait Emergency Recovery Office would have a damage recovery mission, they set up an emergency management structure similar to those used in responding to natural disasters. *(Chart 4)* The organization was made up predominantly of structural engineers who could conduct damage surveys and provide detailed estimates for repairs, rather than contract management and quality assurance specialists.

Locurcio established field offices called damage assessment groups and an emergency management division to provide direction. There was a damage assessment group for each functional area—such as buildings, roads, and sanitation—that the Kuwait Emergency Recovery Program members had identified. The groups assessed damage to ports, the airport,

Chart 4–Kuwait Emergency Recovery Office, Emergency Response Phase



*DAG=Damage Assessment Group



A Corps member outside the Seif Palace

fresh and waste water treatment systems, power production facilities, roads, public buildings, and defense installations. Each group was aligned with a specific ministry: public and state buildings, roads, sanitary, electricity and water, defense, airport, and ports.

The damage assessment groups were subdivided into damage assessment teams. For example, the public buildings damage assessment group was responsible for seven geographic areas, so it had seven teams. The roads damage assessment group divided the country into four areas, so it had four teams. The ports damage assessment group required only one team. Each team consisted of a U.S. engineer, a Kuwaiti engineer, and a contractor representative. Having all three on the team expedited the process of developing a scope of work, negotiating an appropriate price, and issuing a notice to proceed.

Locurcio wanted his organization to be flexible enough that he could shift personnel among the various damage assessment groups as the workload shifted. Later, as the operation progressed, the damage assessment groups converted into resident offices staffed with engineers experienced in contract administration.

In addition to damage assessment groups and teams, the Corps' organization included support elements such as logistics and resource management that were similar to those found in a small district office. It could perform a limited design function, project management, resource management, and contracting. One of the greatest advantages was that the organization could effectively carry the work through the entire construction process, after the damage assessment groups were fully converted to resident engineer offices.[4]

A final key element of the organization was its Kuwaiti volunteers. Corps members held a week-long series of workshops and partnering exercises in Dhahran to familiarize the Kuwaitis with their American counterparts, instruct them in project management, and foster teamwork.[5]

A Kuwaiti volunteer outside the Amiri Hospital

Locurcio used the damage assessment group and team structure for the first 45 days to develop a complete assessment of the damage, while other staff members mobilized contractors. During this period, the teams developed and prioritized over 1,000 individual "work orders," which included detailed scopes of work and cost estimates. Meanwhile, emergency repair teams removed debris and rubble.

During the subsequent recovery phase, the emergency management division with its damage assessment groups shifted to a more traditional project management structure with four resident offices to oversee contractors in the field. This structure ensured that the Corps members could administer their contracts and complete the projects according to Corps and Department of the Army quality standards. The four resident offices were not linked to a specific site such as an Army air base as traditional Corps operations were. Rather they were organized by function—buildings, transportation, utilities, and defense—and reported directly to Locurcio. The emergence of the resident offices marked a shift in emphasis from damage assessment to construction. *(Chart 5)*

At this point, primary responsibility for the operation transferred from the emergency management division to the project management division. The project managers served as the primary link with individ-

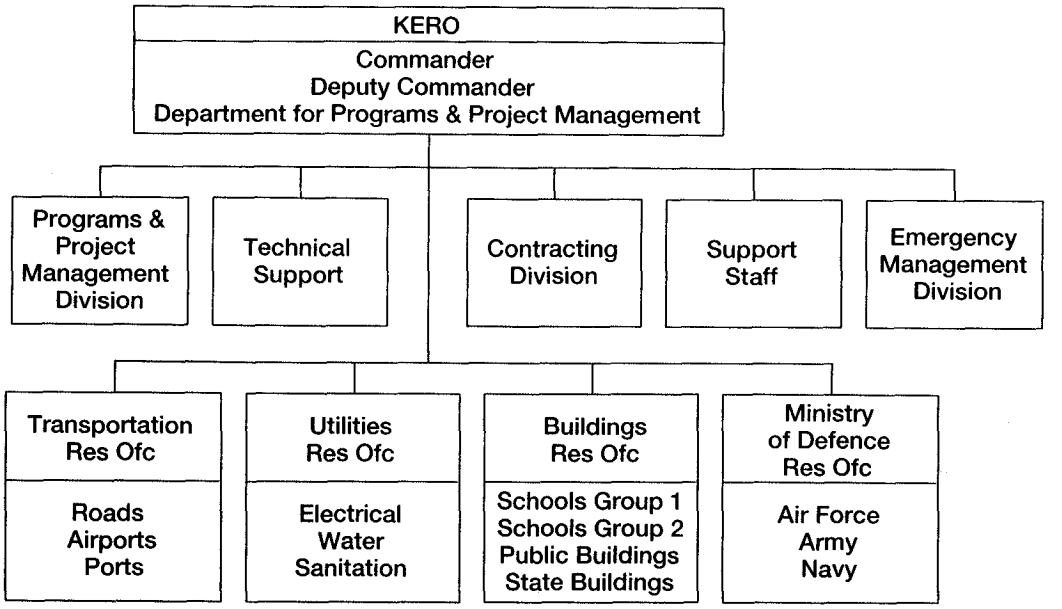


Chart 5–Kuwait Emergency Recovery Office, Recovery Phase

ual Kuwaiti ministries. Each project manager handled the full range of projects associated with a particular ministry across all functional areas.

The project managers were assigned to each ministry sector to coordinate with the appropriate Kuwaiti officials responsible for that sector. They developed a program to administer all projects for that sector, from conception to completion when the Kuwait Emergency Recovery Office turned the project over to the ministry. The project managers established priorities, developed budgets, and determined project features and quality standards. They also monitored and reported progress through the design, contracting, and construction phases and supervised turnover of the project to the Kuwaitis.

This was the first time that an entire Corps operation was rooted in the relatively new concept of project management. In the late 1980s, the Corps had taken steps to improve its procedures for planning, designing, constructing, and managing its civil works projects. The Corps had traditionally used a "stovepipe approach" in which planning documents pass back and forth among the engineering, planning, and construction divisions. In 1988, at the urging of the Assistant Secretary of the Army for Civil Works, Robert Page, the Corps adopted a new methodology called project management that involved coordinating engineering, construction, contracting, and other offices. A project management team, rather than an individual, remained responsible for a project from its inception to its completion. In this instance, the project management

system provided a single contact for each ministry and complete "cradle to grave" management of that ministry's entire program.

The transition from emergency management to project management and from damage assessment groups to resident offices created a few problems as Corps members sorted out their new roles and responsibilities. Some friction resulted when project managers found that even though they were responsible for particular engineering programs and were supposed to be the focal point for information, they still had to turn to the emergency management branch and the damage assessment groups for information.

The transition to project management began in late March, earlier than anticipated, and perhaps before the Corps was fully prepared. The first Corps members had been brought in for 90 days, but the transition to project management occurred only 45 days into the operation because the damage assessments were complete and construction was underway. The Kuwait Emergency Recovery Office did not bring in contracting specialists early enough and had few experienced quality assurance specialists on site. When firms began submitting contract proposals, Locurcio found that he did not have enough contracting personnel to administer those contracts. Planners had assumed that the engineers conducting the damage surveys would also perform the quality assurance for the contracts, but these engineers were still tied up with surveys. Moreover, they were primarily design engineers who had not been trained for quality assurance.

Locurcio conceded that the Corps did not have all the necessary people in place for the shift to project management. He needed civil engineers who specialized in contract administration, not design engineers, to staff the resident engineer offices. The Corps quickly recruited and deployed additional contract administration specialists.

As the role of the project management division expanded, the role of the emergency management division decreased. Eventually, the emergency management division was dismantled and the emergency management function was placed within the project management division. The organization ultimately included a project management division, an engineering division, a contracting division, and a support division but no construction division since the resident offices reported directly to the commander.[6] In the first three weeks, the Corps' office in Kuwait grew to include 14 military officers, 112 Corps civilians, over 60 Kuwaiti engineers, and nearly 1,000 contract workers.[7]

The Kuwaiti volunteers made significant contributions. They were well educated, some with degrees from universities in the United States, well qualified, and fluent in English. They had access to important information and documents that the Corps required and helped Corps members locate

A Corps contractor and Kuwaiti volunteer discuss road repair.

desperately needed plans and specifications for government and public buildings. More important, they were familiar with existing systems and the engineering philosophy behind those systems. The volunteers saved Corps personnel many hours and much frustration by steering them to the key decisionmakers in the various ministries. The Kuwaiti volunteers were, Bader Al-Qabandi observed, initially frustrated by what they perceived to be the slowness of Corps procedures, but they soon came to understand that the Corps was moving as quickly as it could, considering the need to control over 1,000 projects and several hundred million dollars. A bond of mutual respect and friendship developed between Kuwaiti and American engineers. The Corps personnel formed a particularly close bond with Bader Al-Qabandi and Fatima Al-Sabah. Al-Sabah held a degree in architecture from Catholic University in Washington, D.C., which perhaps accounted for some of her western assertiveness, and had served in the Ministry of Public Works for nine years.

The Kuwaiti volunteers, in turn, benefitted greatly from the experience of their U.S. counterparts. The female engineers who worked with the Corps received valuable field experience normally not available to them. Locurcio viewed training local nationals as part of the overall U.S. effort to promote stability in the Middle East.[8] Commenting on this spe-

cial relationship, Dr. Shaheen noted, "From the time we left Dammam to return to Kuwait, I have watched the Corps people as they do their work—not just as the responsible thing to do, but they were pushed by their own beliefs. Everyone (Corps and Kuwaiti) worked together anytime day or night. Our relationship has been very successful."[9]

Locurcio commanded an organization made up of Corps civilians and soldiers from throughout the United States who had never worked together and were accustomed to different ways of doing business. He administered a new life cycle project management organization with an unusual variety of contracting mechanisms. The organization of the Kuwait Emergency Recovery Office provided enough flexibility for the transition from damage assessment to construction and from emergency response to recovery. The concept of life cycle project management, implemented for the first time on a large scale, proved effective. Some project managers were involved in the entire process from surveying damage through the completion of the projects.

By contrast, the rotation of key leaders, such as deputies, division chiefs, resident engineers, the chief of project management, the resource manager, and the property book manager, every three months was very disruptive. When a senior official rotated out, the organization lost a degree of continuity and accountability for his or her decisions.

In addition to the disruptions caused by the 90-day tour of duty, Locurcio had difficulty recruiting enough contracting specialists and electrical engineers. Sometimes supervisors refused to release them from their home offices because of their critical expertise. The early Corps organization also lacked auditors who could help minimize costs and establish an adequate paper trail.[10]

Despite some organizational weaknesses, Corps members and their Kuwaiti partners worked diligently to fill the gaps and accomplished a great deal in a very short time. They maintained a high level of professionalism and commitment and were justifiably proud of their accomplishments. Julius "Bo" Bounds, Locurcio's director of contracting, recalled the satisfaction of having children ask for his autograph or families stopping in the road to thank him. Ben Wood, Locurcio's deputy, later observed, "I learned that within the Corps there's a tremendous...capability I never knew existed.... It makes me proud to be a part of it."[11]

Command and Control

Corps headquarters provided the Kuwait Emergency Recovery Office with personnel, logistics support, and technical direction through the

South Atlantic Division and the Transatlantic Division. The South Atlantic Division had provided such support to Corps personnel during Operations DESERT SHIELD and DESERT STORM and had served as the higher headquarters to the Middle East/Africa Projects Office until late February 1991 when that office became the Transatlantic Division. Corps headquarters maintained command but had less operational control.

During the recovery planning stage, the Ambassador gave direction through the Kuwait Task Force on the type and extent of the mission that the Kuwait Emergency Recovery Office would undertake. However, as the operation developed, the Kuwait Emergency Recovery Office and the 352d Civil Affairs Command worked as parallel organizations, each reporting directly to the Ambassador and receiving taskings and priorities from him. Those taskings and priorities had to be within the parameters of the original foreign military sales case authority. For the first month, Locurcio and other representatives gathered daily in the Ambassador's kitchen at 7:00 A.M. to eat C–rations. At 7:30 A.M. they moved into the dining room where they sat around the dining room table as they briefed the Ambassador. Armed with this current information, the Ambassador would then leave for his daily meeting with Dr. Shaheen, some of the Kuwaiti ministers, and the Emir.[12]

When ARCENT created Task Force Freedom, the Kuwait Emergency Recovery Office's relationship to the task force was unclear, especially since the office operated on Kuwaiti funds. Locurcio was instructed to place his organization under the operational control of Task Force Freedom until responsibility for the Kuwait recovery transferred from the theater commander, General Schwarzkopf, to the Ambassador. The formal cease-fire agreement ending the war, and consequently this transition, took longer than anticipated. The Iraqis did not accept the United Nation's terms for a permanent cease-fire until 7 April. After some discussion, General Frix instructed Locurcio to take operational direction from the Ambassador but to coordinate all actions and report regularly to Task Force Freedom. Locurcio or his representative attended Frix's daily staff meetings. Without a close relationship with Task Force Freedom, Locurcio's group might have stayed out of Kuwait until authority passed to the Ambassador, when the Kuwait Emergency Recovery Office would have come under the "official" control of the Ambassador. The confusing transition period stretched out for over a month.

Although Locurcio and his staff technically were not part of Task Force Freedom, they were placed under the operational control of General Frix. Three times a week, Locurcio provided Frix with detailed status reports and occasional supplements. These reports circulated through CENTCOM headquarters to the Army Staff. Meanwhile,

Locurcio maintained his direct link with the Ambassador, attending daily staff meetings, receiving taskings, and providing updates. Locurcio later observed that he reported to "everybody" on a daily basis—to the Ambassador, to Task Force Freedom, and to the Transatlantic Division. His patience and management skills were surely tested by the delicate reporting structure. Yet he apparently was able to satisfy all the demands for information.[13]

Damage Assessment

As with Task Force Freedom, the Corps' first task after setting up operations in Kuwait was to assess the damage. To ensure that the assessments were well documented, Locurcio's staff developed report forms much like the ones the Corps normally used in responding to natural disasters in the States. The damage assessment teams consisted of one or two Corps employees (usually one was a military officer who could provide security and explosive ordnance disposal assistance), one or two Kuwaiti engineers, and a contractor representative. The assessment would determine the feasibility of making expeditious repairs. The plan was for team members to agree on the scope of work while visiting the site and write the damage survey report so repairs could begin within days.[14]

Some problems quickly developed. Because of delays mobilizing contractors, some teams initially had no contractor representative. Also, the lists of structures and facilities requiring surveys that Kuwaiti representatives in Dammam had given the Corps were incomplete. To further complicate matters, Kuwaiti priorities changed after the Corps members arrived in Kuwait. Finally, some duplication occurred in the assessment process. The 416th Engineer Command and civil affairs troops performed some damage assessments and shared their survey information with the Corps, but Locurcio's teams had to go back to the same structures to conduct the more detailed assessments needed for scopes of work and cost estimates. Occasionally, representatives from all three Army elements showed up at meetings with the Kuwaitis and peppered them with questions about infrastructure.[15]

Corps members performed over a thousand damage surveys. Their reports included the scopes of work and the government estimates for the projects. After the damage assessment groups reviewed the reports and approved the estimates, Dr. Shaheen approved the projects and authorized construction. Thus, emergency work orders became task orders that the Corps issued to its contractors. If a facility could not be easily repaired, the

damage assessment team noted this on its survey report and filed the report with the damage assessment group for future action.

Before the task orders were issued, representatives from the various ministries had the opportunity to review the reports. The ministries provided continuous input into the Corps' priorities and commitment of funds. Dr. Shaheen ensured that the expenditure was within the priorities that the Kuwaiti government had established for the Corps. The contracting officer then issued a notice to proceed to the contractor. Locurcio's resource manager ensured that the Corps did not overobligate funds and provided accountability in the process.[16]

Corps Contracting Strategy

As the Kuwait Emergency Recovery Office assessed damage and mobilized its contractors, it drew on a contracting strategy that it had developed in the United States before deploying. A key element of that strategy was to ensure that U.S. firms received preference.

Before the August invasion, Kuwait had not been inclined to give U.S. firms access to its markets. Germany and Japan had been the dominant trading partners. Moreover, for most business opportunities, Kuwait required that the foreign contractor form a joint venture contract with a Kuwaiti firm.

After the invasion, the situation changed dramatically. Kuwaiti officials pledged to award the contracts proportionately to firms from the countries that had sent troops to help liberate Kuwait. The United States would have the largest share of work, followed by Britain, France, and Saudi Arabia. Countries that did not send troops to join the coalition forces and quibbled about their financial contributions, such as Germany and Japan, found themselves effectively cut out.

Early estimates projected that reconstruction in Kuwait (a country the size of New Jersey) would total $100 billion over the following five years. Media reports predicted that the reconstruction of Kuwait would be "one of the biggest and most rapid construction programs in history," and firms began scrambling for contracts.

By late February, 70 percent of the nearly 200 contracts that the Kuwaiti government had awarded to restore basic services and repair oil wells had gone to U.S. firms; contracts worth more than $800 million according to Kuwaiti officials. Caterpillar, Inc., for example, sold the Kuwaitis hundreds of diesel powered electric generator sets. Motorola, Inc., supplied thousands of portable telephones. AT&T installed a satellite station in Kuwait City for emergency long-distance service. General

Motors Corporation, Ford Motor Company, and Chrysler Corporation provided vehicles.[17]

Some Americans believed that U.S. contractors should receive the bulk of the reconstruction work as a reward for the U.S. role in successfully liberating Kuwait. As early as 3 January 1991, Representative Helen Delich Bentley had introduced a resolution calling on the President to instruct the State Department to inform Kuwaiti officials that their contracts for the reconstruction work should reflect the troop commitment of the coalition forces. "Because of the United States unequivocal support for Kuwait," she explained, "I strongly believe it appropriate that U.S. industries, including U.S. dredging firms, be afforded the first opportunity to participate in all reconstruction efforts when they ultimately are initiated." More specifically, Representative Bentley urged Secretary Stone to help ensure that American companies received a large portion of the work restoring navigation and reopening harbors in Kuwait. Assistant Secretary Livingstone assured Representative Bentley that the Army was "making every effort to give interested American firms appropriate consideration" for potential Kuwait recovery work.[18]

American firms of all types and sizes deluged government agencies, industry organizations, and private placement firms with inquiries about opportunities in Kuwait. The Department of Commerce established a Gulf Reconstruction Center to coordinate efforts to help American businesses obtain contracts. Commerce Secretary Robert A. Mosbacher, Ambassador Al-Sabah, and General Hatch formally opened the center. The center's 16-line telephone bank started getting inquiries the day the ground war started and was soon receiving 2,000 calls a day from large contractors, small companies, and individuals seeking work.[19]

Prospective contractors and eager job seekers flooded Corps offices with calls. The Transatlantic Division had to install 20 additional telephone lines, which were quickly jammed. Corps headquarters in Washington also set up special telephone lines to handle hundreds of calls from job seekers. Meanwhile, by mid-March the Kuwaiti representatives in Washington received 2,000 pieces of mail a day from individuals, firms, and industry associations seeking work.[20]

As the letters and calls poured in, the Corps and the Kuwaitis struggled to resolve the sensitive issue of giving preference to U.S. contractors. The Federal Acquisition Regulations prohibited the Corps from limiting contractor participation unless the Kuwaiti government so requested. General Ray asked Ambassador Gnehm to encourage Kuwaiti officials to give preference to U.S. firms.

Meanwhile, Locurcio and Dr. Shaheen held lengthy discussions on the issue. For example, how would they define U.S. preference? Did it mean

51 percent of construction went to U.S. firms or 99 percent? Ultimately, they agreed that U.S. preference meant that if all the bidders had roughly the same technical merits, the contract should go to the U.S. firm.

In a 21 February memo, Dr. Shaheen authorized the Corps to give maximum preference to U.S. firms in awarding contracts for Kuwait reconstruction. A few days later, Dr. Shaheen explained to Locurcio that the Kuwaiti government wanted the Corps to give preference to U.S. firms in awarding the emergency recovery contracts provided they could respond and perform within the required time frames. In fact, he had no objection if all of the contracts went to U.S. firms as long as they could perform the work expeditiously.[21]

Another key element of the contracting strategy was to limit the Corps' contracting effort to design and construction during the emergency response phase. The Corps' Kuwait office would decline any work that involved services or maintenance operations. At a 16 February meeting with Dr. Shaheen, Locurcio had explained that under the current foreign military sales case, the Corps could only accept taskings for design and construction work for the repair and recovery of Kuwait's infrastructure. Gnehm had insisted on this stipulation so the Corps would not become overwhelmed with providing services, which would detract from its primary mission and area of expertise—construction. Services such as purchasing furniture, collecting garbage, operating warehouses and depots, maintaining buildings and equipment, and operating facilities or equipment were considered beyond the intended scope of the Corps' foreign military sales case. Locurcio informed Dr. Shaheen that the Kuwaiti government should contract directly for these things.[22]

The Corps' initial contracting strategy for repairing Kuwait's infrastructure and restoring emergency services was based on two key assumptions: that there would be enough time to solicit bids from potential contractors and that there would be no well-defined scope of work. Therefore, they decided to use competitive, indefinite delivery type contracts (IDTC), with work issued to contractors through a series of delivery orders. Contracts would list the estimated types and quantities of various of labor, equipment, and supplies. The Corps would compete these contracts among potential vendors who had been prequalified on the basis of low unit prices for a typical scope of work.

The Corps used a "prequalification" process for all interested contractors, a process outlined in the Department of Defense's Federal Acquisition Regulations, to obtain a list of those firms that exhibited the best capabilities and skills for the mission in Kuwait. Prequalifying the contractors let the Corps screen out firms that probably could not suc-

cessfully complete a project in Kuwait, sparing those firms the large expense of preparing a proposal.

When the first members of the Kuwait Emergency Recovery Office went to Dhahran in early February, contracting specialists in Winchester believed they would have over 60 days to award contracts for emergency work in Kuwait. In mid-February, they initiated the normal steps for awarding competitive contracts by publishing three notices in the *Commerce Business Daily*, the normal government vehicle for informing industry of available contracts. The notices invited firms or joint ventures that wanted to prequalify for future contracts to submit what were called expressions of interest. The announcements, one for construction contracts, one for architect–engineering contracts, and one for supplies and services, were to be open for 30 days.

The announcements described the general scope and approximate cost of the contracts as well as the evaluation factors to be used in the prequalification process. Firms were asked to complete and submit a specific form by the closing date of the *Commerce Business Daily* announcement. The announcement sparked the interest of thousands of design, construction, and supply firms around the world. Contracting specialists in Winchester quickly excluded hundreds of firms that had no experience working overseas and rated the remaining 186 firms. The Corps planned to use the responses in conjunction with the bidders list that the Middle East/Africa Projects Office had established to develop its prequalified list.

Each firm's submittal was evaluated independently by three engineering and construction specialists. Contracting specialists at the Middle East/Africa Projects Office averaged the three scores and gave the averaged ratings to a prequalification board along with the firm's original submittal. The board, made up of representatives from various directorates and a lawyer, first heard a presentation on the location, scope, schedule, and cost of a potential project and then established minimum scores for specific rated factors. The board then examined each firm to determine if it met the established criteria for prequalification and sent requests for proposals to the firms that met the minimum criteria.[23]

On 17 February, while the announcements were still on the street, Ambassador Gnehm arrived at the Kuwait Emergency Recovery Office headquarters in Dhahran to inform Locurcio and his staff that they had only 10 to 14 days to award all the contracts for the emergency work. The Corps would have to compress its original 60-day contracting process into less than two weeks, he explained, because the ground war was likely to begin sooner and be much shorter than originally thought. It also appeared that the Corps members and other noncombatants

would be allowed into Kuwait City within days, rather than weeks, of the liberation. Gnehm emphasized that the United States would need to secure the peace in the region after it won the war by restoring Kuwait's infrastructure as rapidly as possible.

The compressed schedule forced contracting specialists in Winchester to ignore the responses to the *Commerce Business Daily* announcement. Locurcio's staff could not wait for them to receive and assemble the responses and transmit them to Saudi Arabia. They needed to accelerate the award of contracts to the contractors in whom the Corps had a high degree of confidence and who could mobilize quickly.

Locurcio and his contracting specialists decided to use a list of construction contractors that the Corps had compiled for Operations DESERT SHIELD and DESERT STORM, plus a list of qualified companies that Kuwaiti officials and engineers requested. They would rely on firms already operating in Saudi Arabia who had the required resources, capability, credit, experience, tenacity, and integrity. The Corps asked these firms to report on both their past experience and their current capabilities (since many firms had moved their assets out of Saudi Arabia to safer areas).

Because of the compressed schedule, Corps leadership concluded that they would have to use noncompetitive letter contracts instead of competitive, indefinite delivery type contracts. These letter contracts became the foundation for the Corps' contracting strategy. Locurcio's contracting specialists requested authority to award up to eight letter contracts, citing Section 2304(c)(2), Title 10, United States Code, "Unusual and Compelling Urgency," as the basis for limiting competition. While the request for Section 2304 authority worked its way up to Corps headquarters, the Kuwait Emergency Recovery Office proceeded with its prequalification process. On 18 February, the staff sent facsimile letters to over 100 major international construction firms that had either been prequalified for work for Operation DESERT SHIELD or that the Corps knew from experience to be qualified. They gave interested firms 72 hours to respond. Although Locurcio's staff sent the letter to only 100 firms, it received more than 300 replies. Much to their surprise, staff members even received proposals from bicycle companies and umbrella companies, as well as proposals for beach and playground equipment, because some agencies passed the letter on to other firms regardless of their expertise. Only 85 of the responses, less than a third, came from what Locurcio and his staff considered to be qualified general construction firms.[24]

On 22 February, a combined Kuwaiti–Kuwait Emergency Recovery Office prequalification and selection board evaluated the proposals of each of the 85 firms and determined that 36 met the board's minimum

qualifications for building, paving, sanitation, and marine survey and dredging operations in Kuwait. Another nine firms were qualified to perform electrical work. The Kuwait office then gave each of these prequalified firms just 48 hours to submit by facsimile more detailed data on their technical capabilities, specific mobilization plans, subcontracts, equipment, and general costs pursuant to a broad-based scope of work.

Locurcio and his staff received the additional information from the contractors by 28 February, the day the ground war ended. Using that new information, they ranked the contractors on the basis of their estimated costs and ability to meet the emergency needs in Kuwait.

Although Corps officials had not yet received the required waiver for "other than full and open competition," they decided to proceed with noncompetitive letter contracts. Of the funds provided in the initial $46.35 million foreign military sales case, the Corps had $22.5 million available to spread among eight contracts. Part of the money had been used to pay for a $5.7 million contract awarded to Raytheon Services Co. of Burlington, Massachusetts, back in January, to provide a temporary air traffic control tower and lighting system for Kuwait International Airport. This contract was intended as an emergency measure if the original tower could not be repaired. Much of the remaining money had been set aside to cover the cost of mobilizing and deploying Corps members.[25]

On 2 March, Locurcio's senior staff and Kuwaiti officials held a final prequalification meeting to determine which contractors would receive letter contracts in the following areas: expedient building repairs in Sectors C, E, and G of Kuwait City; expedient building repairs in Sectors B, D, and F; expedient building repairs in Sector A; expedient survey and clearing of the Shuaiba port; road and runway repair throughout Kuwait; expedient electrical repair throughout Kuwait; expedient water and sanitary systems repairs throughout Kuwait; and expedient repairs to the Bayan Palace complex.

Kuwaiti officials oversaw the contract award process through their representatives on the prequalification and selection board. The board, chaired by Locurcio, included three U.S. and two Kuwaiti representatives, giving the Corps the final say.

The Kuwaitis wanted to divide the work among the coalition partners, and as chairman of the selection board, Locurcio came under pressure to make sure that some of the initial contracts went to contractors from other coalition countries. The two Kuwaiti representatives who sat on the board lobbied to award contracts to two Saudi Arabian firms. The board ultimately selected three American firms, two Saudi Arabian firms, one Kuwaiti firm, and one British firm.

On 3 March, just one day before the Kuwait Emergency Recovery Office moved into Kuwait, it awarded eight unpriced letter contracts totaling $22.5 million, using Section 2304 as justification. Brown and Root International based in Houston, Texas, received a $3 million contract to repair public buildings in Sectors C, E, and G. Blount Construction International of Montgomery, Alabama, received a $3 million contract to do expedient electrical repairs and a $3 million contract to make temporary repairs to public buildings in Sectors B, D, and F. American Dredging Company of Camden, New Jersey, received a $400,000 contract for expedient survey work at the Shuaiba port. Khudair Group, a Saudi firm, signed a $1 million contract for repairs to the Bayan Palace complex, while another Saudi firm, Al-Harbi Trading & Contracting Co., Ltd., signed a $4.5 million contract for expedient road and runway repairs. Mohammed A. Kharafi, a Kuwaiti firm, received a $5 million contract for emergency repairs to public buildings in Sector A, while Shand Construction Ltd., a British firm, received a $2.6 million contract to repair Kuwait's sanitary and water systems. Corps officials then asked each contractor to develop a mobilization plan specifically tailored to the scope of work and to place their best estimated price on the total mobilization plan.[26]

The decision to use the "compelling urgency" justification would have a profound effect later on. It created an environment that was ripe for future audits. If a contract was advertised for fewer than 30 days, Congress considered it less than "full and open competition," no matter how many firms were contacted. Contracts over $500,000 that had no evidence of competition required a formal audit by the Defense Contract Audit Agency, so that agency would have some oversight responsibility for the life of the contract.

The Kuwait Emergency Recovery Office did not have a large enough pool of contractors in Saudi Arabia to provide the required price and technical competition. Also, since Locurcio's contracting specialists did not know the extent of the damage in Kuwait, they could not develop a scope of work that adequately reflected conditions there. By contrast, during Operations DESERT SHIELD and DESERT STORM, Corps contracting specialists knew that troops wanted certain supplies or projects and had a chance to discuss the requirements with the users in advance. Thus, they were able to develop a scope of work that accurately reflected the needs of the customer. In Kuwait, they could only develop a very general scope of work such as "repair buildings in Sector A."[27]

Corps representatives met with Commerce Department officials several times in mid-March to explain their contracting strategies and activities. They assured the Commerce Department that if they identi-

fied additional requirements for engineering and design assistance beyond the 90-day emergency period, they would use the previously issued *Commerce Business Daily* announcements to select firms. If they identified additional requirements for construction contractors beyond the 90-day emergency period, they would issue a new announcement for each project.[28]

Despite the Corps' assurances, the basic acquisition strategy did not change significantly after the initial contract awards. Although Corps officials always planned to increase the number of contractors in Kuwait by going back to the original *Commerce Business Daily* list, during the emergency response phase they found that the scope of the additional contract work was too small to justify the cost of mobilizing additional contractors. Also during those first months, given the urgency of the work, they never felt that they had enough time to go back to the list. Corps officials concluded that the most responsive thing to do was simply to modify the original contracts. The original scopes of work for each contract were extremely broad because Locurcio and his staff had no good information about the actual conditions in Kuwait. Also, a competitive business environment would not be truly reestablished in Kuwait until long after its liberation. Thus, even if the Corps had wanted to solicit competitive bids for new emergency response work, there were no viable contractors on site except the ones that originally accompanied Corps members into Kuwait.[29] The broad scopes of work allowed the Corps to award additional work to the same contractors through unpriced change orders or contract modifications.

Contracting Activities

Electricity

The focus of the U.S. effort during the emergency response phase was on Kuwait's essential services and structures. The key to this effort was restoring electrical power. Therefore, this became the Corps' highest priority. Before the invasion, Kuwait's three operating power plants had over 7,000 megawatts of installed electrical generation capacity, even though the peak prewar electrical generation requirement was only 4,500 megawatts. Using an elaborate grid system, Kuwaiti officials had been able to route the power supply in any direction from one corner of the country to another.

The chief of Locurcio's electricity damage assessment group, Kesh Vadlamani, and his staff found that the redundancy in the city's electrical system made the repair effort easier. It let the Corps and its contractors

Jim Wong, U.S. Army Corps of Engineers, and Suhalla Marafi, a Kuwaiti engineer, inspect electrical damage at Ali Al-Salem.

cannibalize one plant for the sake of another or completely bypass a particular plant and use its distribution system to supply power to an electrical function elsewhere in the grid. Corps members could move a transformer from one damaged electrical substation to another and make the second substation functional. In several instances, they bypassed a particular substation altogether, converting it to a switching station, and accomplished the power transformation at a nearby substation.[30] *(Figure 1)*

Damage to overhead power lines was much greater than anticipated, and contractors had difficulty getting to repair sites because of large quantities of unexploded ordnance on the ground. Although Corps personnel had been warned about the hazards of booby traps and land mines, they were not prepared for the vast amount of ordnance that they encountered. Coalition forces had dropped a large quantity of cluster bombs around the high tension power lines and other work sites. Iraqi forces had thought they would be safe from air attacks under these lines, but coalition planes bombed and strafed them, causing heavy damage.

A large percentage of the bombs lodged without detonating in the soft, sandy desert terrain. Cluster bombs injured and killed a number of contractor personnel who inadvertently disturbed those sensitive muni-

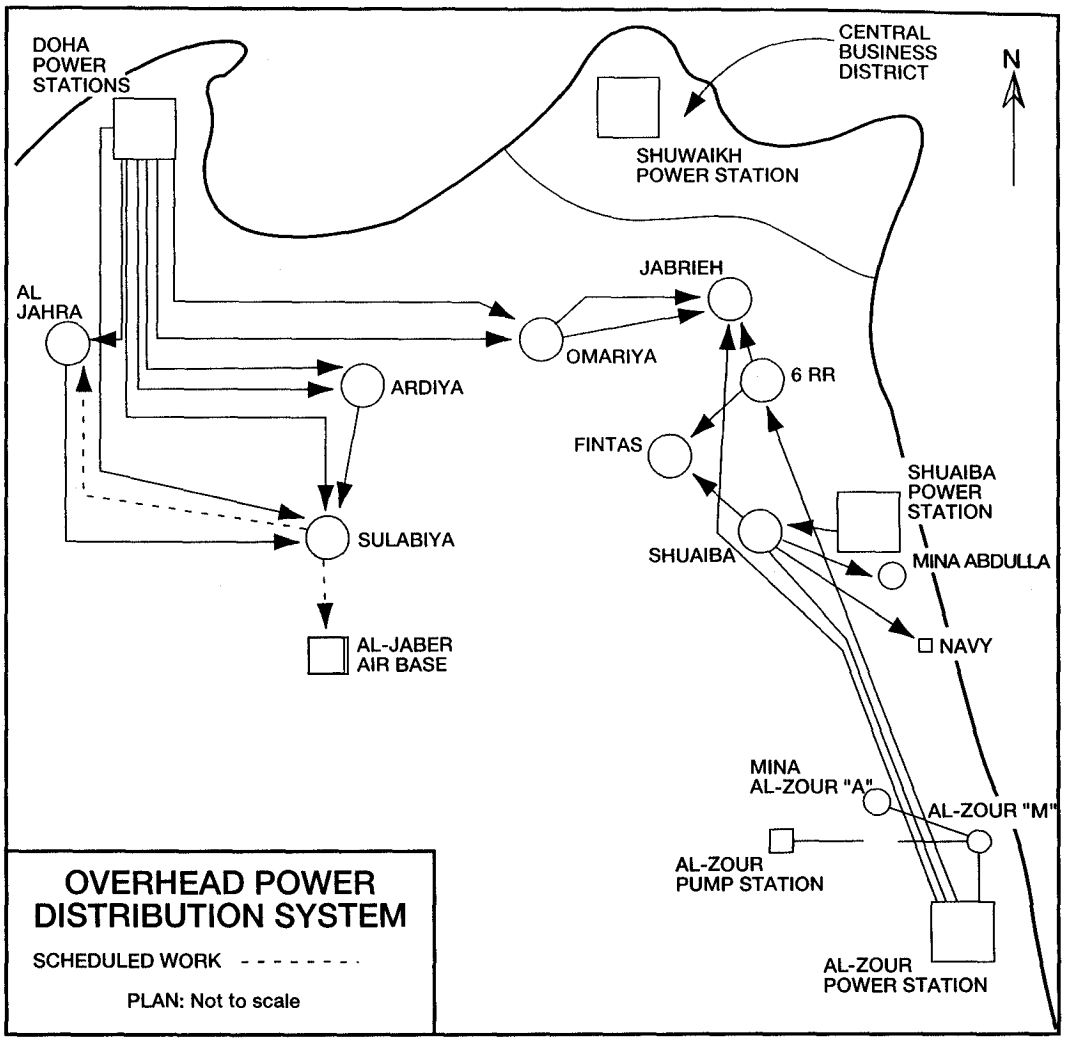


Figure 1—Overhead Power Distribution System

tions while working or moving under power lines. For example, two linemen were injured when a bomb exploded while they were coiling up damaged cable.[31]

The initial survey of damage to the transmission lines had been done with binoculars from the nearest roads, some distance away. When workers began actually walking mile after mile under the lines and inspecting them more closely, they found the damage greater than originally thought. The cables had been frayed or completely severed by bullets. Fortunately, most of the poles suspending the lines were intact, as were most of the towers. Replacing these custom-made towers would have taken months.

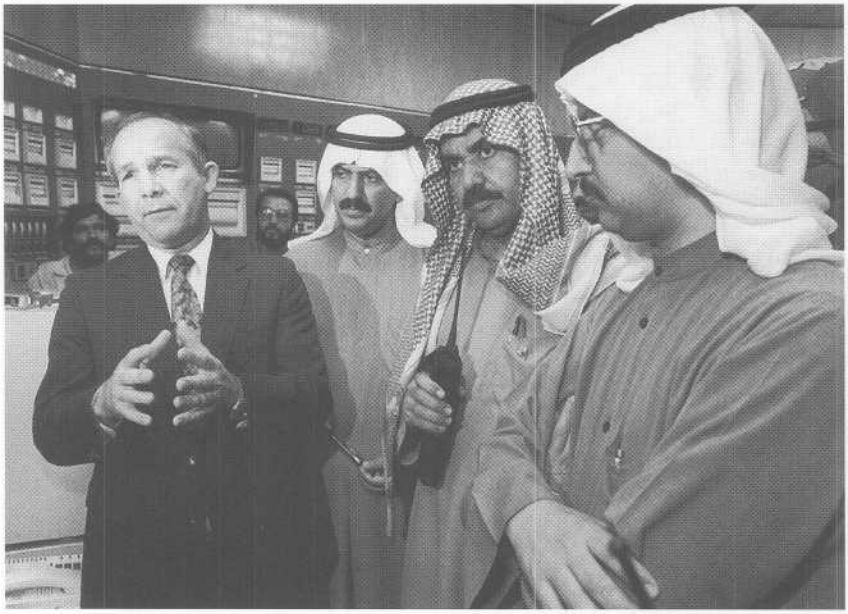
Of the roughly 4,000 substations in Kuwait, more than 235 were severely damaged. The Kuwait Emergency Recovery Office and its con-

Kuwaiti volunteer Eman Al-Qurba and Corps Capt. Bob Irby assess damage to power lines.

tractors identified 29 key substations requiring immediate repair. They repaired them using parts cannibalized from other substations. By the end of 1991, the Corps and its contractors had repaired roughly 10,000 kilometers of transmission lines and the most critical substations.[32]

The Kuwait Emergency Recovery Office and its contractors also immediately began making emergency repairs to the least damaged power plants. The heroic acts of Kuwaiti officials during the occupation simplified the repair efforts. The director of the Al-Zour plant remained on site throughout the occupation and endured repeated beatings by the Iraqi soldiers to save this 2,400-megawatt plant from destruction.

The bravery of the director and chief engineer at the Doha East and West plants also saved that 2,400-megawatt facility. Doha West had a master control center where the plant's eight turbine/generator units were coordinated and balanced. The Kuwaiti officials were shrewd. They convinced the Iraqis that the control room was the key element in the operations of the plant so the Iraqis would focus their destruction on the control room and spare other more critical parts of the plant that would be more difficult to repair. They also secretly replaced canisters of hydrogen with oxygen to keep the Iraqis from destroying the hydrogen



Ambassador Gnehm,* left, *with Kuwaiti officials at a press conference at the Doha power plant

required to operate the generators. This switch also reduced the risk of an explosion.

With these precautions, the plants remained operational until the very end. A large clock on the wall in the control room at Doha West remained frozen at 4:30 A.M. on 23 February, the exact moment when the Iraqis detonated explosives that turned the master control panel into a useless heap of mangled metal and wire. The Iraqis also damaged two turbines and a master pump house at the Doha East plant. However, all eight turbines at Doha West remained intact and essentially undamaged.

The power plant's staff managed to salvage a few control switches and other parts and later turned them over to engineers from British Electricity International, the London-based firm that had operated the facility before the war under a 12-year contract with the Ministry of Electricity and Water. Working 18-hour days, the British engineers painstakingly sorted through thousands of wires from the original control panel to isolate key control strands. They carefully threaded these key wires into a small, crude-looking box—a handmade control panel that would let operators manually synchronize the power generating

units. Normally, the eight generators were synchronized in the control panel before the power could come on line. Only two of the eight could be synchronized with the box, but that would provide enough power for Kuwait's population.

While the British and Kuwaiti teams struggled to repair the generator controls, the Kuwait Emergency Recovery Office's electrical team worked around-the-clock to repair the transmission lines and substations required to distribute the power once the generators came back on. The Ministry of Electricity conducted nightly meetings at its headquarters to coordinate these activities and prioritize the numerous requests for electrical service. At a meeting on 24 March, the Minister of Electricity gave the order to throw the power switch connecting the generators to the power grid. The order was transmitted by radio to the Doha power plant.

When the engineers at Doha turned on the synchronizer for the first time, the dials on the control panel jumped up and down at different speeds, indicating that the generators were out of sync. Suddenly, as if on cue, the needles on each dial shifted into the same position, 3,000 revolutions per minute. Expressions of relief and joy crept across the faces of many of the 20 or so anxious spectators. Others wiped tears from their eyes. With the repair of the panel and previous repairs to transmission lines, the plant sent the first power to the city. At precisely 8:20 P.M. Locurcio and the others back at the Ministry of Electricity headquarters peered out the ninth-floor window to watch the waves of lights illuminate the city—a very emotional moment for many.[33]

The Corps of Engineers and its contractor had helped restore the electrical power just 20 days after they signed the initial contract for the repairs. By late March, they had restored enough capacity to produce over 150 megawatts. Residents began once again to leave their homes and move about freely after dark. Work continued on the rest of the electrical grid system. To many, restoration of electrical power marked the end of the "emergency" phase of the recovery operations.[34]

Transportation

The Corps' immediate goal was to clear debris and make emergency repairs to major roads and highways south of Kuwait City to expedite the flow of supplies from Saudi Arabia. (*Figure 2*) Setting priorities for clearing vehicles and bunkers from the highways was difficult because initially it was not obvious which roads needed to be cleared first. Corps contractors rebuilt 12 kilometers of the Nuwaisib Road from subgrade to a surface course of asphalt within 45 days. The road was open to returning citizens on 11 May 1991. Similar work was

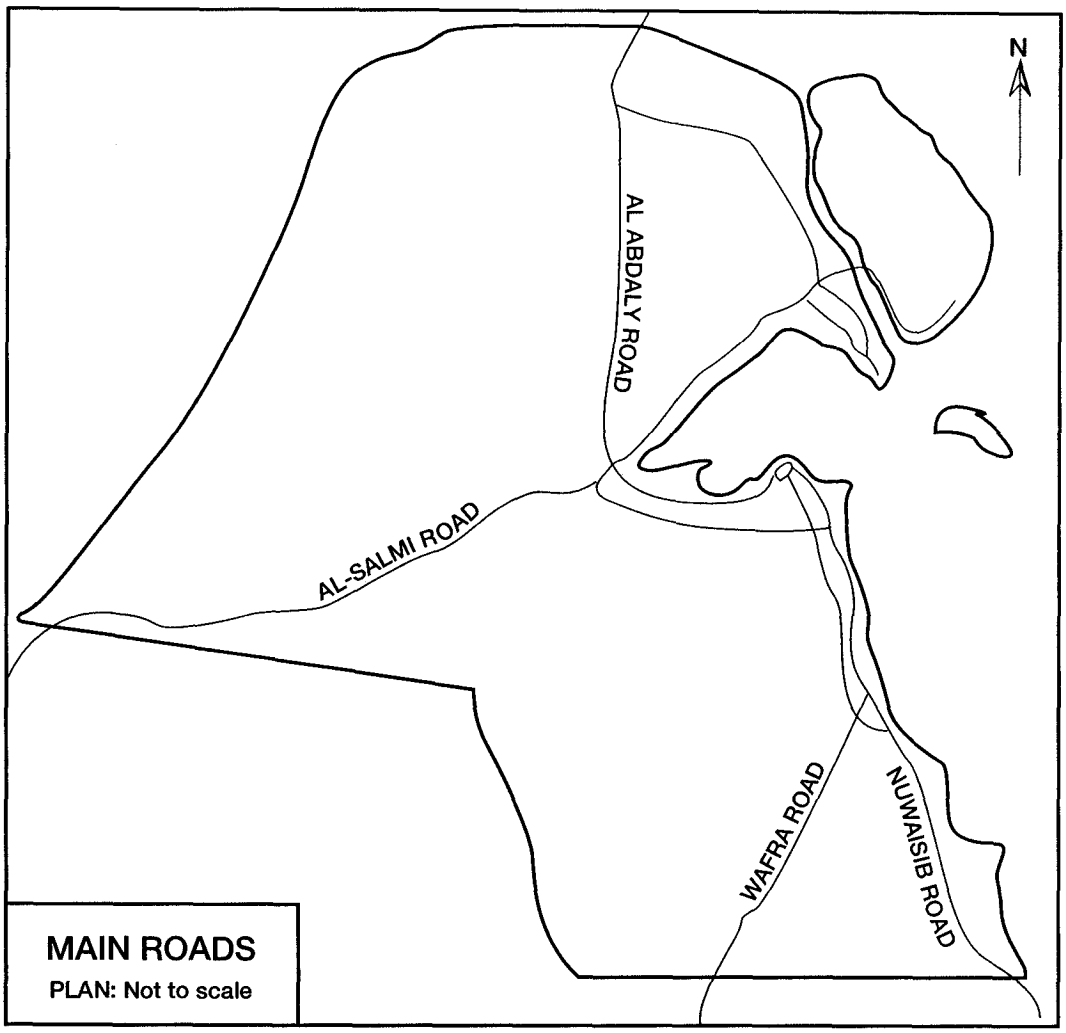


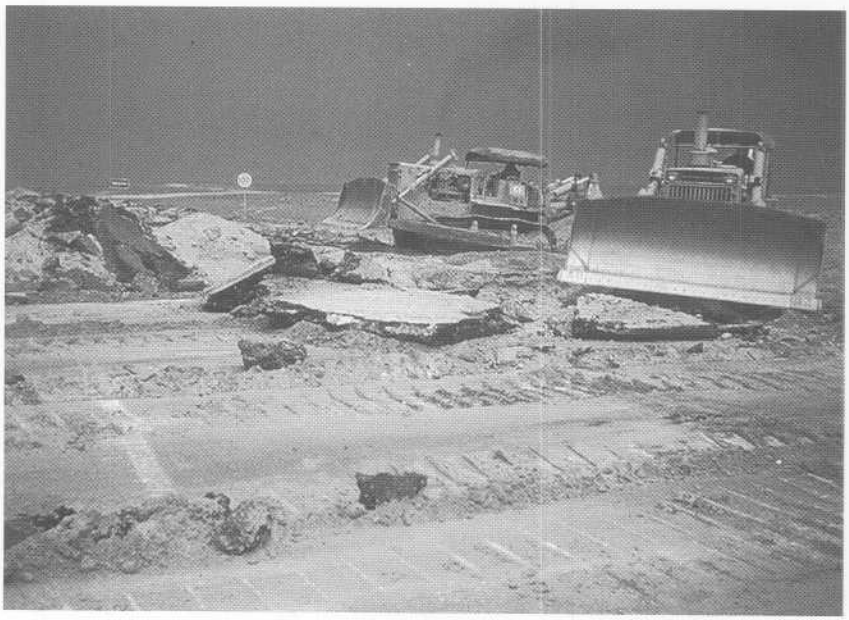
Figure 2–Main Roads

also completed on 30 kilometers of Al-Salmi Road, which led southwest to Saudi Arabia.

On Al-Abdaly Road, a main route leading north from Kuwait City to Basrah in Iraq, Corps contractors removed 166 vehicles, repaired over 170 craters, and removed roughly 600 bunkers that were blocking travel routes. In Al-Abdaly Road's Mutla Pass, known as the "Valley of Death," where Iraqi soldiers had tried to flee the coalition air assault, debris removal was particularly challenging because of the huge volume of unexploded ordnance and hundreds of damaged trucks, cars, and buses looted from the Kuwaitis.

Paving these roads required some ingenuity. Corps contractors had to haul asphalt over 322 kilometers from Saudi Arabia. Despite the challenges, by late November 1991, contractors had repaired over 90 percent

Iraqis used this road, heading north out of Kuwait toward Al-Abdaly, as an escape route; below, *road repair south of Kuwait City.*



Contractors repair roads in Kuwait.

of the bomb craters on Kuwait's major roadways and had removed roughly 2,800 wrecked vehicles, 600 Jersey barriers, and 200 Iraqi defensive bunkers from over 200 kilometers of roadway.

The Kuwaitis decided to handle repairs to the ports with their own contractors, except for restoring a ferry terminal and clearing the channel at Shuaiba. A Corps contractor, American Dredging, used side scan sonar to locate sunken vessels in the channel. Much to the Corps' dismay, either the contractor or its consultant misinterpreted the survey results and overlooked a tugboat, 38 meters long, at the bottom of the channel, wedged under the north pier—a major threat to marine traffic. The port authority discovered the tug when it tried to berth a ship in the same slot. Fortunately, the ship was not damaged.[35] The U.S. Navy agreed to clear all the mines from the channel to create a safe shipping lane.

The Kuwait Emergency Recovery Office was also responsible for emergency repairs at Kuwait International Airport, the main port of entry for Kuwait's citizens and businesses. Its operations were essential to the recovery. The airport's two main terminals had sustained major artillery damage and arson. With help from a civil affairs officer with experience in civil airport operations, the office implemented a repair strategy aimed at restoring electricity so the airport's radar and commu-

nication systems could function. Corps contractors removed over 1,200 obstacles from the runways and taxiways; 36 major structures and facilities required damage assessment and repair.

Before the liberation, the Corps had contracted with Raytheon to fabricate and test an emergency airport control tower in the United States and then ship it to Kuwait. Delivering the 14-story control tower, broken down into shipping containers no taller than 16 feet, proved particularly challenging. The containers were too large for 747s, so the company had to contract for military C–5 aircraft.

When Corps personnel discovered that the airport was not as badly damaged as anticipated, they revised Raytheon's work order. The control tower was given to the Kuwait Air Force and installed at Ali Al-Salem Air Base, 30 miles northwest of Kuwait City. The change in venue made the task of erecting the tower more difficult and added $600,000 to Raytheon's $5.7 million contract. Locurcio's staff oversaw the emergency repairs to the central tower and reception area in the main terminal so passenger traffic could resume. Emergency repairs proceeded so smoothly that on 1 May the Kuwaiti government reopened the air lanes during daylight hours.[36]

Water/Sanitation

In addition to the transportation infrastructure, Kuwait's water and sanitation systems required immediate repair. The Kuwaitis had given the Corps a preliminary list of the water mains they knew were broken during the occupation so the Kuwait Emergency Recovery Office could begin planning for the repairs. *(Figure 3)*

The sanitary and water damage assessment group headed by Mary Weber, a young environmental engineer from Corps headquarters, coordinated closely with Kuwait's Ministry of Electricity and Water for water system repairs and the Ministry of Public Works for sanitary system issues. Upon arrival, Weber and her staff quickly had to familiarize themselves with two entire systems. The Iraqis had stolen or destroyed all of the drawings for the systems, so the group had to rely on Kuwaiti volunteers familiar with the systems. For example, the chief of Kuwait's sanitary system contributed his expertise. With the help of the volunteers, Weber's group pieced together information from various sources and then repaired the damaged pipes. In some instances breaks in the water mains were detected by observation from helicopters. Major breaks often produced noticeable wet areas in the desert. The Kuwait Emergency Recovery Office then sent repair crews to those sites.

The situation Weber found did not always correspond to her expectations. For example, wartime media reports had claimed that the Iraqis

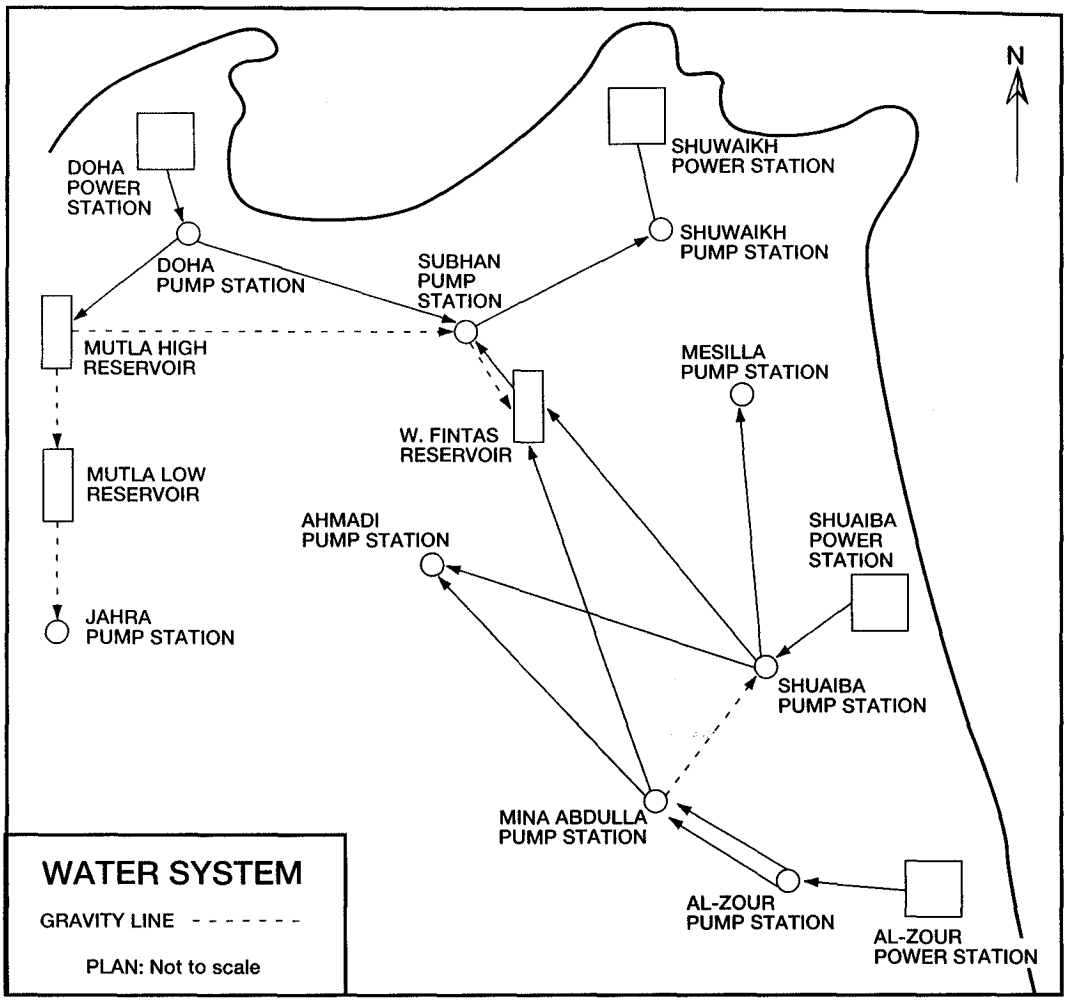


Figure 3–Water System

had stolen all the manhole covers in the city. Upon her arrival, Weber quickly discovered that the reports were false and canceled the order for over 1,200 manhole covers.

Two of Kuwait's main water pumping stations were flooded. Corps contractors pumped the water out of one station, dried the pump motors, and put the station back in operation. As with the power plants, the Iraqis had destroyed the electronic control systems, so the pumping stations had to be operated manually. Kuwait had 2 billion gallons of storage capacity in water towers and reservoirs. Fortunately most of this storage system escaped damage.

Six emergency crews from the Corps office repaired major pipeline breaks throughout the city. Shand had the contract to repair the water system. With over 40 breaks to be repaired, water rationing continued in the early days. Fortunately, as with the electrical system, the water sys-

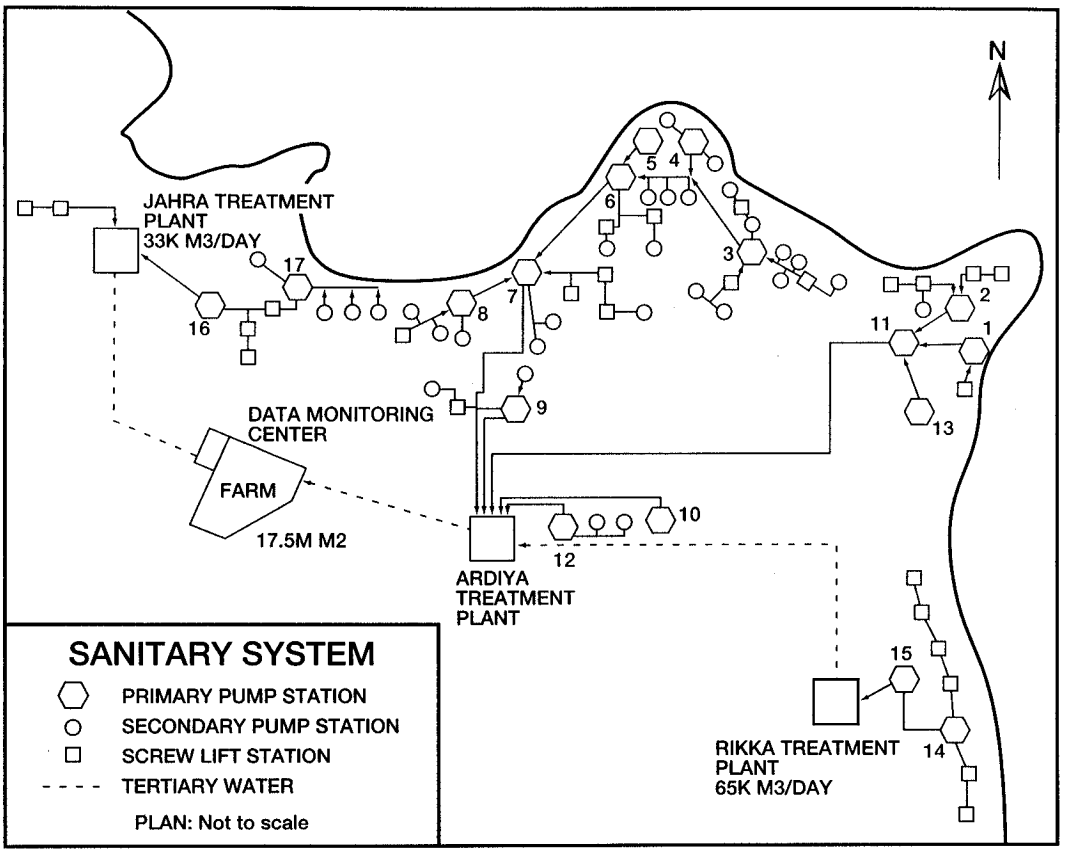


Figure 4—Sanitary System

tem had much redundancy. The Kuwaitis could send water anywhere in the city through many different pumping stations by simply opening and closing a series of valves. This made the restoration easier because the Kuwaiti government and the damage assessment group could direct the water through one line at a time rather than having to rebuild all the pumping stations before distributing any water, which would have taken more than six months. They could establish priorities and funnel the water to the most heavily populated areas first.[37]

After officials began pumping water through the network on 20 April, the damage assessment teams identified additional leaks. By early May, they had completed 26 assessments totaling $1 million, repaired six major breaks in the Al-Zour to Mina Abdulla pipeline, and converted three brackish water lines to fresh water lines to double the flow to the West Finatees reservoir, which provided most of the water to the residential and main business districts. Daily water service resumed in early June 1991, and on 31 July the Ministry of Electricity and Water assumed responsibility for all water production, storage, and distribution.[38]

Kuwait's sanitation system consisted of 4,700 kilometers of gravity sewers, 160 kilometers of pressurized water mains, 17 major and 57 secondary pumping stations, and 146 odor control stations. *(Figure 4)* Kuwait had three very modern treatment plants. When the Iraqis invaded, the Kuwaitis began systematically shutting down the entire system. They knew the Iraqis would not be able to operate the system, and without constant supervision and maintenance the whole system would have been destroyed.

Shutting down the system proved to be a smart decision. By doing so, the Kuwaitis ultimately saved themselves some expensive repairs. But after sitting idle for seven months, the electrical and mechanical systems required major repair. While the system was shut down, raw sewage poured directly into the Gulf, bypassing all pumping stations and treatment plants.

Also, the Iraqis had extensively vandalized the treatment plants and destroyed their electrical panels. At the Rikka treatment plant, for example, Iraqi troops had ripped all fixtures from the bathrooms and used the rooms for cooking, eating, and sleeping. They stole all the laboratory equipment and air conditioners and left large piles of trash. The facilities had to be cleared and cleaned before the teams could even begin assessing the damage.

The pumps and control valves in the sanitary system could not operate without electricity. Corps members could not test the system until the 112 pumping stations had power. They used some mobile generators to test individual pumps, but they could not check the whole system unless they brought in a generator for each station.[39]

The Corps' role in repairing the sanitation system was limited. It prepared 24 damage survey reports on 77 sanitary facilities as well as a comprehensive assessment of the sanitary system. The Kuwait Emergency Recovery Office provided government officials with technical support and helped them purchase equipment. After that, its contractor, Shand, repaired six major pipeline breaks. Repair of each break in the huge, ductile iron pipe, 1,200 millimeters in diameter, took the contractor three days. The remaining repairs were turned over to the Ministry of Public Works.

The Kuwaiti government ultimately awarded a two-year contract to Operations Management International Corporation from Kingwood, Texas, to repair and maintain the entire sanitary system, including repair of the treatment plants, pumping stations, and sewer lines.[40] Before the invasion, there had been about thirty pipe flushing crews who regularly vacuumed out the sewers. By the end of the occupation, the sewer system could have easily kept 100 crews busy. The backup was so severe

that raw sewage popped the manhole covers and poured across the lawns of Kuwait's residents.

The sanitary and water damage assessment group had only one crew initially. Early each morning the crew chief received his assignment for the day and went to the specified location. When residents heard that he was operating in the area, they brought him drinks and candy bars and encouraged him to bring his crew to their neighborhood next. Each day, at the end of his 12-hour shift, the crew chief returned to the office with a large supply of treats, much to his supervisor's surprise.

The repair work sometimes brought danger rather than rewards. When one crew removed a manhole cover to clean the debris, the startled workers discovered a group of Iraqi soldiers hiding below. After some initial resistance, the soldiers were arrested. Although Operations Management International implemented safety precautions, three of its workers became trapped below a grating while repairing a sewer line. The workers were overcome by hydrogen sulfide and drowned in the sewage.[41]

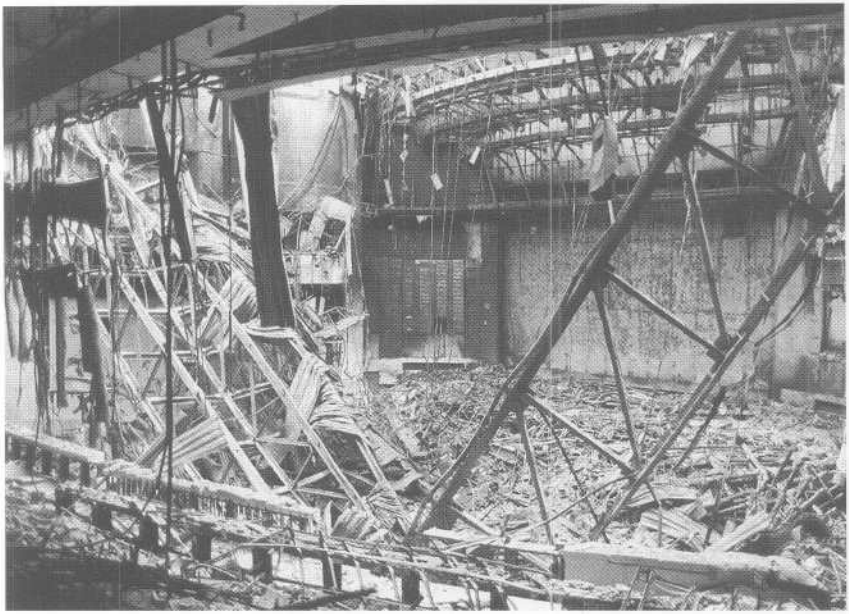
Government and Public Buildings

The Corps' mission also included emergency repair of public and government or state buildings. Almost all of the buildings had been looted and vandalized, and some had sustained minor fire damage. Often they were littered with unexploded ordnance and stockpiled Iraqi munitions.

The emergency restoration of government and public buildings became the largest effort of the Kuwait Emergency Recovery Office and its contractors. Initially, Kuwaiti officials had identified more than 700 damaged public buildings and established priorities for their repair. The Kuwait Emergency Recovery Office hired three contractors for building repair (Brown and Root, Kharafi, and Blount) and divided the city into Sectors A through G. The repairs would stretch well beyond the initial 90-day emergency period.

Public service support buildings damaged during the Iraqi occupation included hospitals; food distribution centers; fire and security, communication, and transportation facilities; and schools. Damaged state buildings included the Bayan Conference Center, the National Assembly building, and most ministry headquarters.

With the Seif Palace badly damaged, Kuwaiti officials decided to use the vacant Bayan Conference Center as a temporary residence for the rulers and seat of government. The sprawling Bayan center, with its meeting rooms and dining area, had originally been built to hold the Islamic Conference in 1987. Later, the Emir had relocated to the Bayan Conference Center, and it was renamed the Bayan Palace. The term "palace" in Kuwait is used to describe any residence of a member of the



Damage to the conference center at the Bayan Palace

royal family or the administrative offices for the Emir and the Crown Prince. The Bayan "palace" was really a complex of government offices.

It consisted of six clusters of three-building office and residential complexes. Each cluster bore the name of one of the islands off Kuwait's coast and contained a number of separate suites—one for each head of state who came to the Islamic Conference. Bayan also included a security command building, an energy plant, and a conference center with a large auditorium. Thus, the Bayan center was ideally suited for government operations.

However, during the occupation, Iraqi soldiers had vandalized and looted the office and residential buildings in the complex and then sprayed the exteriors with artillery fire. They had set fire to the giant auditorium, nearly destroying it.

The Kuwaiti government gave the Corps $1.5 million for repairs. Specifically, the Corps' task was to convert a building in the Bubiyan cluster into offices and administrative areas for the Crown Prince and the Emir. The Kuwaitis also asked the Corps to fix up the rest of the building as a temporary residence for the rulers. Until these buildings were repaired, the Emir and the Crown Prince had to stay at a wealthy Kuwaiti businessman's home, which had no facilities for conducting government

business. The Corps awarded a fixed-price contract to Khudair to repair all three buildings in the Bubiyan cluster. In the first two weeks, Khudair converted two wings into office space, allowing government offices to begin operations. Nearly 400 workers installed fixtures, doors, and furniture salvaged from the most severely damaged buildings. They carefully cleaned and repaired the impressive Italian marble floors and Moroccan tiles and patched and rehung the delicate silk brocade on the walls.

The renovation attracted much media attention and sparked sharp criticism, especially when Corps members were observed installing gold-plated bathroom fixtures and doorknobs. The opulence of the restored palace was presented in sharp contrast to the hardship of most Kuwaiti citizens three weeks after the liberation. Responding to media criticism, Corps officials insisted that they were putting no more emphasis on the palace than on their other missions in Kuwait. The marble and wood-paneled offices and apartments being renovated, they added, had actually been constructed long before the invasion and were appropriate for a head of state and his cabinet. Moreover, the work was part of a larger emergency repair effort. The Corps made basic repairs and had nothing to do with "gold-plated fixtures," except those salvaged from other buildings.[42] There had been a similar uproar in 1977 when the Corps had purchased furniture, china, and silver for the Saudi Naval Expansion Program. Although no U.S. funds were spent, there was heavy criticism in the media and in the U.S. House of Representatives. Many of the luxurious furnishings that the Saudis bought were intended for special occasions and celebrations.[43]

The Corps and its contractor finished renovating the Bubiyan complex and the energy plant in just 30 days. They later began repairing the Warbah complex and the security building for an additional $2 million.

The National Assembly or Parliament building, a facility equivalent to the U.S. Capitol, had been completely gutted by fire and artillery and tank rounds. The large assembly hall suffered the greatest damage. The Corps and its contractor, Kharafi, performed the reconstruction work. Transatlantic Division awarded a contract for the reconstruction work to Kharafi on 4 July 1991 with an original completion date of 29 April 1992.

Corps contractors also repaired the heavily damaged Ministry of Planning headquarters. Projects critical to the return of law and order included the Police Special Forces Camp, the Police Academy, and the National Guard complex. Repairs to each of these facilities involved extensive architectural and electrical work and the installation of new mechanical systems.

The Kuwait Emergency Recovery Office also undertook a program to remove debris, clean structures, and install new mechanical systems in roughly 8 hospitals and 49 medical clinics. By early May, the Kuwait

office had completed nearly 200 damage assessments and conducted emergency repairs to 22 government facilities.[44]

Finally, the Kuwait Emergency Recovery Office was responsible for damage assessment and expedient repair to Defense and National Guard facilities including six major staff–headquarters office complexes, one hospital, two air bases, three brigade-size camps, one air defense camp, one engineering department office building, one supply and storage camp, one navy base, two National Guard training camps, a National Guard headquarters building, and several Kuwaiti Coast Guard facilities. By early May it had completed damage surveys on Ras Al-Qalayah Navy Base, Ali Al-Salem Air Base, Ahmed Al-Jaber Air Base, three brigade camps, and 40 other facilities.[45]

Problems for Contractors

Corps contractors encountered serious problems. Initially, they had difficulty mobilizing because the Kuwaiti and Saudi Arabian governments changed the procedures for crossing their common border. In late January 1991, U.S. officials informed the Kuwaitis that access for contractors was a critical issue but failed to address any specific measures. When the Corps' Kuwait office awarded the emergency repair contracts on 3 March 1991, it gave each contractor a paper that listed a point of contact with the Kuwaiti government and explained the procedure for mobilizing their workers and equipment in Kuwait.

Under this procedure, contractors provided a list of names and copies of work permits directly to a representative from Kuwait's Ministry of Interior, Abdul Aziz Al Kulaz, at the Oberoi Hotel in Dammam. Kuwaiti officials approved the list by attaching a signature document. Upon receipt of the approved list, the contractor took the signature document to the Al Gosaibi Hotel in Khobar to obtain another Kuwaiti official's signature. Next, the contractor had to obtain a signature from a Saudi official in Dammam, but this official was available for only a few hours each day. After securing all three signatures, the contractor presented the document to the border officials in Khafji to secure passage into Kuwait.

Throughout March, government officials repeatedly modified the procedures, further hampering the contractors' efforts to mobilize. On 9 March, a Brown and Root representative complained that officials had changed the procedures and the signature document so contractors had to redo all the paperwork. A few days later, officials again revised the procedures to require additional copies of documents with original pho-

tographs. This caused more delay. Lacking specific instructions, one contractor complained, "the process remains unsure." Corps officials warned that imprecise procedures for moving contractors and their equipment from Saudi Arabia to Kuwait would delay mobilizing contractors and might result in claims from the contractors. Yet, within 15 days, contractors overcame security problems at the Saudi border and mobilized roughly 900 workers in Kuwait.[46]

To complicate matters, businesses operating out of Saudi Arabia could not get multiple entry visas, which would allow them to travel in and out of Kuwait freely as they did business. This was a special problem because of limited housing and transportation in Kuwait. Most hotels were uninhabitable. Supervisors, who no doubt were accustomed to more comfortable accommodations, sometimes ended up sleeping on the floor in power stations. Blount later transformed several abandoned buildings into a work camp and mess hall where the company's nearly 400-person team could eat, sleep, and rest.[47]

Contractors also had difficulty getting their machinery and equipment into Kuwait. Sea access was limited because the Iraqis had mined Kuwait's ports. Commercial airlift was impossible because initially air traffic was limited to military and tactical requirements. The only feasible access was by land through Saudi Arabia, but all ground traffic in and out of Kuwait traveled on the same north-south, two-lane road. Convoys of heavy equipment loaded on trailers moved slowly. In addition, for 8.5 kilometers north of the Saudi border, all traffic was restricted to the west lane and had to snake around torn up sections of the road. Traffic bottlenecks at the Saudi–Kuwaiti border slowed the shipment of building materials. Once in Kuwait City, contractor convoys encountered huge traffic jams because the traffic lights did not work. The obstacles to moving equipment had a particularly great impact on the ability of the Corps' electrical repair contractor to restore critical overhead electrical lines and towers.

Corps contractors and other U.S. businesses operating in Kuwait faced other significant challenges as well. Communications with U.S. headquarters or with suppliers in the Middle East during the first three weeks was nearly nonexistent. There was no electrical power except that provided by portable generators and no operable local telephone system. In early March, AT&T set up an earth station satellite and established 120 lines for free public use at the request of the Ministry of Public Service, but the waiting lines were long. This was not suitable for business communication, so contractors had to rely on cellular telephones in vehicles and individual satellite telephones. Blount purchased a car equipped with a cellular telephone, but supervisors had to drive within

30 miles of the Saudi border to communicate with their office in the States or their local suppliers. Contractors had no mail service.[48]

Despite the thousands of hours that companies and individuals spent pursuing business opportunities in Kuwait, most found information to be scarce and job opportunities limited. The Kuwaitis channeled most work through the U.S. Army Corps of Engineers or through a handful of large corporations that had long-standing ties in the Gulf. Even companies experienced in doing business in Kuwait found that they could easily spend large sums of money to develop proposals and end up without contracts.[49] The Kuwaitis might require companies to expend some effort with no guarantee of reimbursement.[50]

Funding Authorities

As the Corps began emergency response work, it relied on its initial foreign military sales funding authority under the terms of a 19 February 1991 memorandum of understanding between the U.S. and Kuwaiti governments. On 21 February, after determining that the original $46.35 million foreign military sales agreement would be inadequate to complete the emergency recovery effort, Kuwaiti officials requested permission to send an additional $53.65 million to the Department of Defense for use by the Corps under an expanded foreign military sales case. They added Kuwait's Ministry of Defence to the list of ministries receiving support.

The Army General Counsel, however, determined that although the Corps had initially used foreign military sales funds to expedite the initial recovery work, at this point, Section 607A of the Foreign Assistance Act of 1961 (Public Law 87–195, as amended) was a more appropriate funding mechanism because the work requested was for civil reconstruction not military security. By 25 February, Kuwaiti officials had already asked the Corps to expand its letter contracts by $53.65 million.[51]

General Hatch argued that the current foreign military sales agreement did not provide enough funding to restore the country's electrical distribution system, and without electricity the rest of the recovery program would be "severely crippled." If the Corps did not rapidly restore the electrical power grid and other essential infrastructure, Hatch warned, "we shall appear to have visibly failed in our mission, with attendant embarrassment of the U.S. Government." Funding for the foreign military sales case was nearly exhausted, he added, and unless the U.S. government agreed to the Kuwaiti request for additional assistance through Section 607A, the Corps would have no legal authority to perform additional work.[52]

The 607A procedures required that the United States and Kuwait first negotiate a letter of exchange specifying the scope and nature of the work and the financial reimbursement procedures. The important letter of exchange would serve as the implementing agreement for Section 607A. Defense officials developed a detailed 10-page legal document for coordination with the State Department. Recognizing that the $46.35 million was nearly gone and work would soon come to a halt, General Kelly asked David Addington in the Pentagon to help expedite the approval. When Addington read the draft agreement, however, he decided to change the wording, much to Kelly's dismay. The revised agreement would have to go through the whole review and approval process again. The State Department objected to some of the new language. Despite the urgent need for a completed agreement so operations could continue in Kuwait, the two agencies haggled over the wording for three weeks before approving the document.

During negotiations with Colonel Locurcio, Dr. Shaheen requested changes in some of the wording. Specifically, Dr. Shaheen objected to the clause giving preference to U.S. contractors. Rather, he wanted Kuwaiti firms to have preference. Locurcio, however, recognizing that Congress and the Department of Defense would never agree to this, held firm.

Dr. Shaheen also objected to the clause stipulating the use of U.S. law for all contracts. He preferred to use Kuwaiti laws and procedures. Locurcio explained to him that the Corps had to abide by U.S. law and contracting procedures. Locurcio added that he could not write a Kuwaiti contract because he did not have enough expertise in their legal system. The two men ultimately agreed that if the Kuwaiti government asked the Corps to prepare and award a contract, the Corps would use U.S. law. If Kuwaiti officials prepared and awarded a contract with the Corps' assistance, they could use Kuwaiti laws and procedures and would serve as the contracting officer. Finally, Dr. Shaheen wanted his government to have the authority to select the contractors. Locurcio convinced him that if the Kuwaiti government wanted the United States to be its contracting officer and use U.S. law and contracting procedures, the Corps would have to make the selection.[53]

On 4 April, General Kelly and Colonel Locurcio discussed the draft letter of exchange with Dr. Shaheen. Over the next 24 hours, they negotiated to get Kuwaiti acceptance of the Defense Department and State Department revisions. The draft allowed Kuwait to let its own contracts in addition to those being performed under the letter of exchange. The negotiators now added a sentence specifying that contracts let by the Kuwaiti government would be governed by Kuwaiti law. Any contracts let by the United States would be governed by U.S. law.

The draft letter of exchange required the Defense Department to report to the Kuwaiti government on the "resulting costs" of the supplies and equipment it procured for its administrative functions. Negotiators now replaced the words "resulting costs" with "estimated costs" to give the Defense Department greater flexibility in reporting its administrative expenses.

General Kelly and Dr. Shaheen signed the final agreement on 5 April. The agreement served as the vehicle for all civil restoration assistance provided by the Defense Department, including damage surveys and assessments; design and construction services; equipment, supplies, and materials procurement; ordering procedures; finance arrangements and financial management; and contracting and procurement. Under the agreement, the contracting procedures would adhere to U.S. laws and follow standard Federal Acquisition Regulation procedures with which most firms had some familiarity.[54] The agreement helped mark the move from the emergency response phase to the recovery phase.

The Corps' flexible organization in Kuwait and its emergency contracting strategy both proved to be well suited to the pressing requirements in Kuwait. The Corps and its contractors restored parts of Kuwait's infrastructure in record time. Within the first 30 days, they restored power to Kuwait City, opened the airport to international traffic, and made the major roads functional. Soon after that, they brought the water system into operation.

Slowly Kuwait's ministries began to let their own contracts directly. The Ministry of Electricity and Water gradually assumed responsibility for major repairs and rebuilding of electrical substations. The Ministry of Public Works assumed responsibility for final repairs to the Bayan Conference Center, the telecommunications tower, and Kuwait University. The ministry also awarded its own contract for the interior design to refurbish the National Assembly building. The Ministry of Higher Education named Jones Group Incorporated from Charlotte, North Carolina, as the construction manager on a $120 million project to restore technical training schools and facilities for the Public Authority of Applied Education and Training. The project involved renovation and some new construction of over 100 buildings on 17 campuses, plus some administrative offices.[55] Although some of the Corps' emergency repair work extended into the summer months, through the dedication and hard work of Task Force Freedom and the Kuwait Emergency Recovery Office, the designated 90-day emergency response phase effectively came to a close on 30 April 1991.

Support to Explosive Ordnance Disposal

After the liberation, the U.S. Army provided valuable support to explosive ordnance disposal. Kuwait was littered with mines, bombs, and bullets, creating major obstacles for farmers and city dwellers. Throughout the city, tons of Iraqi ammunition, hand grenades, rocket-propelled grenades, tank rounds, and mortar shells sat in boxes or lay open along streets and highways. Scattered throughout the countryside were tens of thousands of baseball-shaped cluster bombs dropped by allied forces. An estimated 5 million mines sat on top of the ground, three or four feet apart, for as far as one could see. Over time, blowing sand would conceal some of the mines, creating an even greater threat.[1]

The effort to remove the mines and munitions was one of the most extensive ever undertaken. It began soon after the liberation of Kuwait when French, Canadian, British, and American divers headed by the U.S. Navy swam Kuwait's two harbors looking for mines. They cleared the loading docks and channels so vessels could safely deliver their cargo.

The U.S. Army conducted only limited mine-clearing operations, only those actions necessary to support current U.S. military actions and protect the troops. Army officials maintained that the host nation was responsible for the extensive long-term clearance operations. Army explosive ordnance disposal (EOD) units redeployed when the war ended, and ordnance specialists with Task Force Freedom left when the task force closed out. By contrast, a French explosive ordnance disposal company launched a highly visible effort to clear a popular beach recreation area as a favor to the Kuwaiti government. The British Royal Ordnance Corps cleared the coast where the French left off and performed limited clearance elsewhere in the city. Bangladeshi troops, whose equipment and tech-

[1] John Arundel, "The Battle to Make Kuwait Safe," *Washington Post*, 20 May 1991, Washington Business Section, p. 14.

Unexploded ordnance could be found throughout the desert in Kuwait.

niques were primitive by comparison, went door-to-door working west to east clearing the city.[2]

Kuwaiti officials indicated they would award their own contracts to clear the ordnance within Kuwait's borders. They decided to carve the country into six large sectors and divide the work among coalition forces, specifically Britain, Egypt, Bangladesh, Pakistan, the United States, and France. The countries approached the problem differently. Egypt, Bangladesh, and Pakistan used their engineer troops to clear ordnance. Britain used a British contractor who hired British soldiers to clear its sector. The United States and France planned to use contractors.

The arrangements for ordnance disposal greatly affected the operations of the Kuwait Emergency Recovery Office. The staff and its contractors could not enter buildings to conduct damage assessments or make repairs until munitions and mines were cleared. Initially, a five-person Army explosive ordnance disposal team cleared the areas where the Corps' damage survey teams would be working. The Corps office had no contractor to perform this work. Kuwaiti officials feared that a Corps contractor would fail to coordinate closely with the contractor that they had hired

[2] Maj. Kirk M. Bergner, interv by author, Kuwait City, 12 Sep 1991, pp. 2–3, 11–12, 15; Lt. Col. Gordon Quesenberry, Information Paper, 9 Apr 1991, Kuwait Reconstruction: Miscellaneous Messages, #7, OACE Reference Files; memo, Bergner to Col. Jesse Gatlin, 13 Oct 1991, Operations-EOD, General Correspondence: DRAO Files.

French marines remove mines from a Kuwait City beach; below, *French marines clear beach obstacles in Kuwait City, March 1991.*

to remove ordnance in the sector where the Corps was working. If a Corps contractor and one of the Kuwaiti government's contractors were removing ordnance in the same area, the officials feared they would have difficulty evaluating their contractor's performance. This situation could also pose a safety risk. The best way to meet the needs of Locurcio's staff seemed to be to use the Kuwaiti government's contractors who were responsible for specific geographic sectors.

The Defense Reconstruction Assistance Office decided to request that the Kuwaiti government insert a contract clause requiring each contractor to coordinate with the Kuwait Emergency Recovery Office and respond quickly to clearance requests within their specific sectors. When delays in signing the explosive ordnance disposal contracts began to hamper the Corps' emergency work, Kelly directed the Kuwait Emergency Recovery Office to award small contracts to clear specific areas where its personnel and contractors were working.[3] Removing ordnance from the areas where the Corps and its contractors worked continued to be very challenging.

A separate issue involved the United States' handling of ordnance removal in its geographic sector. General Kelly and Maj. Gen. Abdul Aziz Al-Sayegh, director of supply in the Ministry of Defence, who was responsible for ordnance clearing operations in Kuwait, met on 25 May to discuss ordnance removal in the U.S. sector, which included southwest Kuwait (minus the oil fields), Ali Al-Salem Air Base, Ahmed Al-Jaber Air Base, and the Texaco oil fields (joint Saudi–Kuwaiti oil fields on the border). Even though the United States traditionally uses soldiers to clear mines, in this instance officials decided to use contractors. The soldiers who specialized in mine clearing had already redeployed.

General Al-Sayegh indicated that the U.S. firm selected for ordnance clearing would have 18 months to complete operations, with a 3-month grace period. After that time, the Kuwaiti government would assess a penalty of $75,000 per day. Many firms bid for the contract for the U.S. sector.

In July, the Kuwaiti government awarded a $134 million contract to Conventional Munitions Systems of Tampa, Florida, to clear the 1,200-square-mile U.S. sector. The contractor cleared a third of the sector within a year. During 1992, it dismantled and filled 65,000 Iraqi defensive earthworks, cleared almost 200,000 mines, and removed nearly 10,000 tons of unexploded ordnance.

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[3] Bergner interv, pp.6–9; memo, Bergner for DRAO Director of Plans & Operations, Subj: Unexploded Ordnance, 8 May 1991, FMS MOD: DRAO Files; Lt. Col. Albert F. Kaminsky, interv by author, Kuwait City, 12 Sep 1991, p. 9.

By October 1991, the British and Egyptians were the furthest along in clearing their sectors. Contracts for the French and Pakistani areas had not yet been let. Limited clearance had been done along selected sites at the 6th Brigade Camp, where U.S. forces were located.[4]

Ordnance removal inflicted a heavy price, both in dollars and in human lives. Over 100 people died in the cleanup operations, including two U.S. Army explosive ordnance disposal specialists. Despite the massive effort, operators found it impossible to detect all of the mines strewn in the sand. The mines and small bombs would continue to threaten the safety and well-being of Kuwait's residents, particularly the children.

[4]Lt. Col. Albert F. Kaminsky, Memorandum For Record, 25 May 1991, Operations-EOD, General Correspondence: DRAO Files; "Kuwaiti Cleanup," *Military Engineer*, Jan–Feb 1993, v. 85, no. 554, p. 17; memo, Bergner to Gatlin, 13 Oct 1991.